

Freshness and quality assurance at company Berglandmilch



Line of Business:	Industrial Refrigeration
Application:	Food Cooling, Dairy Product Cooling
Country / City:	Austria / Aschbach
Fluid:	NH ₃
Product:	Ceiling unit cooler ADHN, Drycooler GFH, Fin and Tube heat exchanger (finoox) GCO

The demands regarding the quality of dairy products like fresh milk, yogurt and butter are high: from the processing to the storage of the sensitive products, swift and unobstructed cooling processes must reliably be ensured. The Berglandmilch reg. Gen. m.b.H. operates one of the most modern plants of the entire European milk industry.

In cooperation with the Anlagenbau Haas GmbH (plant engineering and construction) and Guntner, the producer equipped his plant in Aschbach in Lower Austria with state-of-the-art refrigeration and freezer units.

The reason for this addition to capacity at Berglandmilch was the shifting of the yogurt and milk production from Graz to Aschbach in Lower Austria. Given the fact that the amount of milk produced in the region is especially high,



the company decided to enlarge the production in Aschbach so that it developed into the central plant for milk, cream cheese, yogurt products and butter. Since the reorganisation, between 600,000 and 800,000 litres of milk are delivered daily to the plant and mostly processed on the spot. In order to be able to cope with this volume, an addition of almost 50 % to the existing capacity was realised in 2002.

One of the latest plants in Europe

Directly beside the existing plant, Berglandmilch built a new building with 8,500 m² covered area.

Controlled by a "Siemens SPS S7", the plant with a total refrigerating capacity of 2,900 kW and a refrigerant charge of 9 tons of ammonia feeds the following chillers:

- two Tankki iced water tanks for process refrigeration with a total storage capacity of 5,000 kW
- a cooling tunnel for yogurt products with 8 Güntner NH₃ floor mounted evaporators
- a high rise store with a volume of approx. 18,000 m³
- a frozen food storage room to store butter at -20 °C with 4 Güntner ceiling mounted unit coolers, type S-ADHN

"With this installation, our branch office in Aschbach is one of the latest in Europe. It has much more capacity than our former production in Graz, and besides, it is especially efficient and safe in operation due to the central refrigeration supply", explains Gerold Atzmüller, Director of Planning and Settlement of Technical Projects in Bergland plants: "For the refrigeration part, it was of the utmost importance to us to build a central refrigeration plant with state-of-the-art technology for the whole new building".

In the scope of an official call for tenders regarding the planning and construction of the plant, Berglandmilch decided to accept the offer of Haas Anlagenbau GmbH, situated in Chieming in Upper Bavaria. The two brothers Konrad and Wolfgang Haas are second-generation managers of the family-owned enterprise

and have succeeded in converting the company into a renowned specialist for refrigeration engineering and plant construction with a reputation that reaches beyond the region of Bavaria.

In previous years, Berglandmilch had already implemented several projects with them in the area of hydrocooling. Throughout the developmental period of almost 12 months, from the first consultation through planning to execution and approval, the enlargement of the production plant in a completely new building was overseen by the company Haas under the direction of CEO Wolfgang Haas. "Already in the planning phase, we attached considerable importance to the possibility of being able to enlarge the facility in order to have sufficient reserve for future requirements", said Haas. "The refrigerating capacity of the whole plant has been dimensioned for 2,900 kW and can be expanded up to 3,500 kW, if necessary."

Güntner is a regular provider

In the area of refrigeration technology, Berglandmilch and Haas Anlagenbau decided to use Güntner components: the cooling tunnel as well as the frozen food storage area in the new building are operated with Güntner evaporators. In ventures of the food industry, Anlagenbau Haas consistently uses Güntner products: "In the area of heat exchangers, Güntner has been our regular provider for years", confirms Wolfgang Haas. In addition to well-known producers in the food industry, e.g. Zott company, dairy producer Berchtesgadener Land, cheese factory Goldsteig and the "Erdinger Weißbier" brewery, renowned industrial enterprises like BMW AG, the pharmaceutical group Roche or Siemens company rank among the regular clientele of many years.

Gerold Atzmüller of Berglandmilch explains: "Our experience regarding the reliability of Güntner products has been consistently positive. For some time now, we have been using evaporators and condensers in our refrigerating plants; therefore, we appreciate the reliable capacity information and the high quality standard that Güntner provides. In our line of business, quality is a top priority and has always been part of our company philosophy. This is

also valid for our investments, which has been confirmed time and again during installation and start-up and, of course, in the cost-effective operation of the plants."

Individual configuration

During planning and configuration of the cooler units, Haas Anlagenbau cooperated closely with Heinrich Gnida from the Güntner selling agency South. Together with Berglandmilch, the partners developed a customised solution specifically for Berglandmilch: "The plant is completely specific to Berglandmilch, and that is also our principle: We do not just mount finished refrigeration units, but construct tailor-made plants for our customer", confirms Wolfgang Haas. Both for the unit design and the selection of special equipment for the needed components, the company relied on the tried and tested cooperation with Güntner.

Special sizes in the frozen food storage room

In the frozen food storage room of Berglandmilch, the freshly produced butter is cooled down from +18 °C to -20 °C inside of one day. The storage room was designed for 3,400 pallets and is refrigerated by four customised dual discharge NH₃ unit coolers, model S-ADHN, that distribute the air evenly between the stored pallets. Güntner exactly adapted these special units to the required capacity and space specifications. Heinrich Gnida of the German Güntner selling agency South says: "At first glance, in a specific combination, even our standard units could have rendered the required capacities.



Maximum operative security with the Güntner NH₃ evaporators S-ADHN 066D/412 in a deep-freeze storage room

However, in order to get an optimal air distribution and taking into account the specific room geometry and a maximum storage capacity, a customised solution was called for. The evaporators constructed specifically for Berglandmilch are accordingly larger; however, they have a compact design and therefore offer not only the habitual high capacity but also a very good price performance ratio."



Tunnel cooler – chilling of yogurt from 20/25 °C down to 6 °C, 50 pallets per hour

Thus, two units of the model S-ADHN 066D/512 with the dimensions 5230 x 1945 x 710 mm (L x W x H) transmit a refrigerating capacity of 85 kW each, at an evaporating temperature of -30 °C. With five fans in each unit, the delivered air flow of 45,500 m³/h precisely covers the required air change rates. Two other special units of the model S-ADHN 066D/412 were designed with a more compact form corresponding to the room requirements. With the dimensions of 4290 x 1945 x 610 mm (L x W x H) and four fans, each evaporator transmits a refrigerating capacity of 55 kW.

Realistic selection criteria with regard to the application, for example taking into consideration the frost deposit, are an important prerequisite for continuously satisfying long-term operation. At the same time, the construction according to the proven Güntner standards provides both maximum operating safety and unsurpassed service life: all units are constructed according to the proven Güntner floating coil design, with bearing stainless steel tubes in the coil, and have a corrosion-resistant DD varnishing.

Custom-made evaporator coils

Subsequently, the components were fitted into the tunnel. In this context, there was a continuous communication between Guntner and the experts of Haas Anlagenbau in the form of on-site conferences. This way, practical suggestions, for example adjustable feet for floor mounting, can be incorporated into the construction without delay and implemented even at short notice. After all, in addition to the capacity and reliability, the on-site installation is an important expense factor that can be minimised by customised solutions.



Ammonia evaporator TL 850 made by thermowave

"Technologically, this area is of the utmost importance for our products. After all, on behalf of our continuous quality assurance, our yogurt products must reliably reach the required temperature inside of 90 minutes", explains Gerold Atzmüller, director of the technical department at Bergmüller. Around 50 pallets of products pass through the completed cooling tunnel before the goods are transported by a fully automated transportation system into the high rise store. Gerold Atzmüller concludes: "The complete plant has been working now for two years without a hitch, and apart from the addition to capacity, it makes an important contribution to the consistent quality assurance at Berglandmilch."

Berglandmilch: dairy products from Austria

Berglandmilch reg. Gen. m.b.H. is one of the biggest companies in the Austrian food industry. With approximately 750 employees in seven branch offices, the corporate group achieves annual sales of 500 million Euros and an export ratio of around 35 %.

Under the family brands of Schärtinger and Desserta, the plants of the Berglandmilch group process about 1 billion kg of milk per year. The product range comprises dairy products made of both fresh and UHT-milk as well as cheese, butter, yogurt and curd cheese. In total, Berglandmilch produces and sells more than 350 different articles.

The company was founded more than a 100 years ago and developed through the merger of the most important national dairy producers. Today, Berglandmilch is one of the leading dairy companies not only in Austria, but also in the European environment.

Quality conservation in butter and yogurt

For the storage of frozen butter, a constant storage temperature of $-20\text{ }^{\circ}\text{C}$ is recommended: not only is the quality conservation ensured at this temperature, but the butter also maintains its good spreadability and can easily be processed – for example portioned.

In order to maintain a consistently high quality of yogurt products, a very rapid chilling down to the storage or transportation temperature has proven of value.